

REMARKS

In the Official Action mailed November 19, 2002, the Examiner rejected Claims 1-19. The foregoing amendment amends Claims 1, 12-14 and 17-19 and cancels Claims 5, 6, 15 and 16.

Rejection of Claims 14-19 Under 35 U.S.C. § 112, Second Paragraph

The Examiner rejected Claims 14, 17, 18 and 19 under 35 U.S.C. § 112, second paragraph because the claims recite a system, but depend from Claim 12 which recites a method. The foregoing amendment corrects the typographical errors found in Claims 14, 17, 18 and 19 and, thus, corrects the dependency.

The Examiner also rejected Claims 15 and 16 under 35 U.S.C. § 112, second paragraph because the claims referred to an antenna circulator for which there appears no antecedent basis. The foregoing amendment cancels Claims 15 and 16 so this rejection is now moot.

Nuding and Watanabe Do Not, Either Singularly or in Combination Describe, Teach or Suggest the Invention of Claims 1-19

The foregoing amendment to independent Claims 1 and 13 clarify that a bandpass filter is coupled between the antenna and the receive path for passing receive signals from the antenna to the receive path while preventing the passage of transmit signals to the receive path and that an isolator is coupled between the antenna and the transmit path for passing transmit signals to the antenna from the transmit path while preventing the passage of receive signals from the antenna to the transmit path. Claim 12 recites passing receive signals to the receive path from the antenna while preventing passage of the transmit signals to the receive path and passing transmit signals to the antenna from the transmit path while preventing passage of the receive signals to the transmit path. *Nuding* does not describe a bandpass filter or an isolator, as recited by the claims. As shown in Fig. 1 and described in the accompanying text, *Nuding* describes a bandpass filter between the transmitters and the antenna (BP2) and a bandpass filter between the antenna and the receivers (BP4). "The two band-pass filters BP2 and BP4 are identically

constructed and tuned to the frequency band of the main system.” Column 2, lines 66-68. Thus, *Nuding* teaches away from the invention of Claims 1, 12 and 13 because the claims recite passing receive signals to the receive path while preventing the passage of transmit signals to the receive path and passing transmit signals to the antenna while preventing the passage of receive signals to the transmit path. Thus, the bandpass filter and the isolator are not identical filters as described by *Nuding*.

In the Official Action, the Examiner admitted that *Nuding* does not disclose communication with mobile radio stations of a CMRS system. However, the Examiner alleged that *Watanabe* discloses “a system for combining frequency selected transmit and receive signals to be sent to a common antenna for communication with mobile radio stations.” The Examiner concluded that it would have been obvious to combine *Nuding* and *Watanabe* to “use transmit and receive signals in a common antenna and a commercial radio station communicating with mobile stations because separate antennas would increase the cost of construction.” However, there is no suggestion to combine the references in the manner suggested by the Examiner. *Nuding* describes a system whereby a narrow band system is connected to a broadband radio system using little additional hardware. Column 1, lines 43-58. In contrast, *Watanabe* describes a transmitter multiplexing system. Fig. 6 and column 6, lines 32-51. The transmitter multiplexing system described by *Watanabe* is distinct from the transmitter system described by *Nuding*. There is no suggestion that the transmitter multiplexing system described by *Watanabe* would work with the hybrid system described by *Nuding*. The system described by *Nuding* uses a single antenna. See Fig. 1. In contrast, the system described by *Watanabe* uses a plurality of antennas. See Fig. 4.

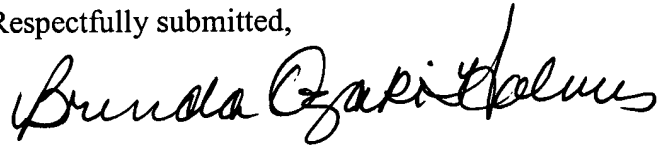
Moreover, the references are directed to solving different problems. *Nuding* is directed to combining a narrow band system with a broadband system to avoid the enlargement of an antenna system on a radio tower. Column 1, lines 43-52. In contrast, *Watanabe* is directed to providing a transmitter multiplexing system for a number of transmitters which are capable of instantaneously switching their transmission channels. Column 1, lines 6-12. In particular,

Watanabe is directed to a system to substantially eliminate the variation in transmission output for transmitters which switch between frequencies. Column 3, lines 26-37.

CONCLUSION

In light of the foregoing, it is submitted that the pending claims are allowable and a notice of allowance is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Brenda Ozaki Holmes". The signature is fluid and cursive, with the first name "Brenda" being the most prominent.

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Version of Amendments with Markings to Show Changes Made

1. (Amended) A system for coupling a base station transmitter and a base station receiver to an antenna for a commercial mobile radio service (CMRS) system, comprising:

an antenna for radiating transmit signals to and receiving receive signals from mobile radio stations of a CMRS system;

a plurality of receive branch networks, coupled to the antenna via a receive path and to the base receiver, each operative to select a frequency range of the receive signals for reception by the base station receiver and to pass the receive signals for processing by the remaining receive branch networks located in a downstream portion of the receive path; [and]

a plurality of transmit branch networks, coupled to the antenna via a transmit path and to the base transmitter, each operative to select a frequency portion of the transmit signals transmitted by the base transmitter for forwarding to the antenna and to accept all transmit signals forwarded by the remaining transmit branch networks in a downstream portion of the transmit path for forwarding to the antenna;[.]

a bandpass filter, coupled between the antenna and the receive path, for passing receive signals within a predetermined frequency range from the antenna circulator to the receive path while preventing the passage of transmit signals from the circulator to the receiver path; and

an isolator, coupled between the antenna and the transmit path, for passing transmit signals to the antenna circulator from the transmit path while preventing the passage of receive signals from the antenna to the transmit path.

12. (Amended) A method for coupling a base station transmitter and a base station receiver to an antenna for a commercial mobile radio service (CMRS) system, the antenna coupled to a receive path comprising receive branch networks for processing receive signals and to a transmit path comprising transmit branch networks for processing transmit signals, comprising the steps:

at each of the receive branch networks, selecting a frequency range of receive signals for reception by one of the base station receivers and passing the receive signals to the receive branch networks located in a downstream portion of the receive path for processing by the remaining base station receivers; [and]

at each of the transmit branch networks, selecting a frequency portion of transmit signals transmitted by one of the base transmitters for forwarding to the antenna and accepting all transmit signals forwarded by the remaining transmit branch networks located in a downstream portion of the transmit path for forwarding to the antenna;[.]

at the receive path, passing receive signals to the receive path from the antenna while preventing passage of transmit signals to the receive path; and

at the transmit path, passing transmit signals to the antenna from the transmit path while preventing passage of receive signals to the transmit path.

13. (Amended) A system for coupling a base station transmitter and a base station receiver to an antenna for a commercial mobile radio service (CMRS) system, comprising:

an antenna for radiating transmit signals to and receiving receive signals from mobile radio stations of a CMRS system:

a plurality of receive branch networks, coupled to the antenna via a receive path and to the base receiver, each comprising:

a circulator, comprising a first port and a third port coupled to the receive path and a second port, operative to accept receive signals from an upstream portion of the receive path via the first port, to pass the receive signals via the second port to the third port and to the remaining receive branch networks located in the downstream portion of the receive path, and to output the receive signals via the second port, and

a filter, coupled between the second port of the circulator and the base receiver, operative to accept the receive signals from the second port of the circulator and to select a frequency range of the receive signals for processing by the base receiver; [and]

a plurality of transmit branch networks, coupled to the antenna via a transmit path and to the base transmitter, each comprising:

a filter, coupled to the base transmitter, operative to output filtered transmit signals in response to selecting a frequency portion of the transmit signal generated by the base transmitter, and

a circulator, comprising a first port and a third port coupled to the transmit path and a second port coupled to the filter, operative to accept at the second port the filtered transmit signals for forwarding via the third port to an upstream portion of the transmit path and to accept at the first port the transmit signals output by remaining transmit branch networks located in the downstream portion of the transmit path for forwarding via the third port to the upstream portion of the transmit path[.];

a bandpass filter, coupled between the antenna and the receive path, for passing receive signals within a predetermined frequency range from the antenna circulator to the receive path while preventing the passage of transmit signals from the transmit path; and

an isolator, coupled between the antenna and the transmit path, for passing transmit signals to the antenna circulator from the transmit path while preventing the passage of receive signal from the antenna to the transmit path.

14. (Amended) The system of Claim [12] 13 further comprising an antenna circulator, coupled between the receive and transmit paths and to the antenna, for directing receive signals from the antenna to the receive path and transmit signals from the transmit path to the antenna.

17. (Amended) The system of Claim [12] 13 , wherein
the base receiver comprises a plurality of channel receivers, each allocated a unique frequency range and coupled to one of the receive branch networks for processing receive signals within the unique frequency range; and

the base transmitter comprises a plurality of transmitters, each allocated a unique frequency range and couple to one of the transmit branch networks for generating transmit signals within the unique frequency range.

18. (Amended) The system of Claim [12] 13 , wherein the number of receive branch networks are equal to the number of transmit branch networks.

19. (Amended) The system of Claim [12] 13 , wherein the number of receive branch networks are not equal to the number of transmit branch networks.